



Ministry of Foreign Affairs

Climate Change Profile

Rwanda

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Introduction

This climate change profile is designed to help integrate climate actions into development activities. It complements the publication 'Climate-smart = Future-Proof! – Guidelines for Integrating climate-smart actions into development policies and activities' and provides answers to some of the questions that are raised in the step-by-step approach in these guidelines.

The current and expected effects of climate change differ locally, nationally and regionally. The impacts of climate change effects on livelihoods, food and water security, ecosystems, infrastructure etc. differ per country and region as well as community and individual, with gender a particularly important vulnerability factor. This profile aims to give insight in the climate change effects and impacts in Rwanda, with particular attention for food security and water. It also sheds light on the policies, priorities and commitments of the government in responding to climate change and important climate-relevant activities that are being implemented, including activities being internationally financed.

Summary

Rwanda is a landlocked country with a moderate climate and relatively high rainfall. Climate change is expected to result in increased temperatures, intensified rainfall, and prolonged dry seasons. This presents different challenges for different regions: the mountainous west of the country will be subject to erosion, parts of the central north and south will experience severe floods, and the east and southeast will suffer from droughts and desertification. In terms of food security, the four most vulnerable regions (out of twelve) are the Eastern Agro-Pastoral Zone, the Eastern Semi-Arid Agro-Pastoral Zone, the Bugesera Cassava Zone in the south, and parts of the Eastern Congo-Nile Highland Subsistence Farming Zone¹ (see [Map 1](#)). Some climate change effects, such as the lowering level of lakes and water flows and forest degradation, are expected to occur throughout the country².

Overall ranking

Rwanda ranks 185 out of 188 countries in per capita GHG emissions³ and contributes only 0.01% global emissions⁴. However, it is very vulnerable to climate change. Rwanda ranks 116 out of 181 countries in the ND-GAIN index⁵ (2016) for climate vulnerability, an improvement from earlier rankings (e.g. 131 in 2013, 130 in 2014). It is the 29th most vulnerable and 94th least ready country – meaning that it is highly vulnerable to climate change effects, yet its readiness to combat these effects is moderate. *Vulnerability* measures the country's exposure, sensitivity, and ability to cope with the negative effects of climate change by considering vulnerability in six life-supporting sectors: food, water, ecosystem service, health, human habitat and infrastructure. *Readiness* measures a country's ability to leverage investments and convert them to adaptation actions by considering economic, governance and social readiness.

Biophysical vulnerability

Current climate. The current **rainfall** pattern of Rwanda shows high annual average precipitation above 1500 mm in mountainous western regions of the country and just below 700 mm in eastern regions⁶. The country's rainfall pattern is characterized by four **seasons**: a short-wet season (September-November), a short dry season (December-February), a long-wet season (March-May) and a long dry season (June-August)⁷. Rwanda's average annual **temperature** is between 15-17° C in high altitude areas and up to 30° C in lowlands in the east and southwest⁸.

Current trends. Analysis of **rainfall** trends has shown an increasing occurrence of extremes over time and in various regions of the country. Rainy seasons are becoming shorter and more intense, especially in the northern and western provinces, which increases erosion risks in these mountainous parts of the country. Eastern regions have experienced serious rainfall deficits in a number of years over previous decades, alternated with rainfall excesses in other years⁹. At the same time, there has been a trend over the past decades towards a higher **temperature**¹⁰.

¹ USAID and FEWS NET (2011): *Livelihoods zoning 'plus' activity in Rwanda*. http://www.fews.net/sites/default/files/documents/reports/RW_livelihood%20descriptions%202011.pdf

² Ministry of Land, Environment, Forestry, Water and Mines (2006): *NAPA Rwanda*.

³ <https://en.actualitix.com/country/mli/mali-co2-emissions-per-capita.php> analysis based on World Bank 2011 data.

⁴ WRI (2017) <http://caitz.wri.org/>

⁵ GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with readiness to improve resilience. <http://index.gain.org/country/rwanda>

⁶ REMA (2011a): *Atlas of Rwanda's Changing Environment: Implications for Climate Change Resilience*. <https://na.unep.net/siouxfalls/publications/REMA.pdf>

⁷ REMA (2009): Chapter IX: Climate change and natural disasters. In: Rwanda state of environment and outlook report. <http://www.rema.gov.rw/soe/>

⁸ REMA (2009)

⁹ REMA (2009)

¹⁰ REMA (2011a); REMA (2011b): *Guidelines for Mainstreaming Climate Change Adaptation and Mitigation in the Health Sector*. http://rema.gov.rw/rema_doc/DNA/CCmainstreamingguide-Health-finaldraft-Augoz.doc#_Toc300054349

Climate change. Current trends in rainfall and temperature are expected to continue in the future. Rwanda has experienced a **temperature** increase of 1.4°C since 1970, higher than the global average, and can expect an increase in temperature of up to 2.0°C by the 2030s from 1970¹¹. The increase is expected to be consistent across the country and across seasons – although the increase in the long dry season may be slightly higher than in other seasons¹². Besides influencing crop yields (see below), this will make previously malaria-free highlands more susceptible or even highly suitable for malaria in several decades¹³, with populations at risk increasing by 150% by 2050¹⁴. Average annual **rainfall** models predict a change between -100 mm and +400 mm for the period 2000-2050¹⁵, but with regional and season differences:

- frequent rainfall deficits are expected in parts of the eastern province (Bugesera, Nyagatare, Gatsibo, Kayanza, Ngoma, Kirehe) and the southern province (Nyanza, Gisagara), while increased rainfall is expected in parts of the western, northern and southern provinces;
- rainfall is expected to be more intense in the rainy seasons while dry seasons will be longer and dryer, which brings new challenges for water management, storage and drainage.

Some of these challenges are extreme events including severe **droughts** and **floods**, which will occur more often due to climate change. Droughts have already resulted in famine, population displacement, conflicts, and biodiversity loss. Seasonal droughts are expected to be prolonged, which will cause problems especially in the east and southeast of the country (Bugesera, Mayaga, and Umutara)¹⁶. The Ministry of Land, Environment, Forestry, Water and Mines made an inventory of the most current environmental risks due to climate change. It concluded that prolonged seasonal drought, dry spells in rainy seasons, and recurrent droughts for three or more years are among the most pressing problems¹⁷. At the same time, the country has experienced major floods in a number of consecutive years (2006-2009), resulting in serious health problems, displacement, large scale erosion, and damages to infrastructure¹⁸. Droughts and floods are region-specific problems, with droughts occurring mainly in the east of the country (see [Map 2](#)) and floods in the western/central north and south (see [Map 3](#)). Some regions are also prone to erosion (see [Map 4](#)).

Changes in rainfall and temperature with an increase in floods and droughts will impact **food security** and **water availability**. An assessment of the influence of climate change on crop productivity in African countries has concluded that Rwanda may be a hotspot of food insecurity in the future, along with many of its neighbouring countries (which limits opportunities for import)¹⁹. Food security will be influenced because of the vulnerability of some crops to increasing temperatures and/or water stress (see below). The most food insecure regions of the country are in the west and central south (see [Map 5](#)).

Rwanda has not experienced serious water availability problems due to its relatively high precipitation rate, despite the lowering level of lakes and waterways. However, climate change – combined with rapid population growth, urbanisation, environmental degradation and pollution – will create new challenges. More attention to water management and options for water storage, irrigation infrastructure and water monitoring²⁰ is needed to cope with future water demands in all region of the country (see [Map 6](#)).

Socio-economic vulnerability

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Key facts:

GDP (PPP) per capita (2016) ²¹ :	USD 1,913.4
Population (July 2017) ²² :	12,208,407
Projected population (2050) ²³ :	21, 886,000
Population density per km ² (2016) ²⁴ :	483.08
Human Development Index (2016) ²⁵ :	159 of 188 countries
Corruption Perceptions Index (2016) ²⁶ :	50 of 176 countries
Gender Inequality Index (2016) ²⁷ :	84 of 188 countries
Adult literacy (2015) ²⁸ :	70.5% (male 73.2%; female 68%)

¹¹ REPUBLIC OF RWANDA, INDC (2015), pp.2. http://www4.unfccc.int/submissions/INDC/Published%20Documents/Rwanda/1/INDC_Rwanda_Nov.2015.pdf

¹² Mitchell (2003)

¹³ Boko, M., Niang, I., Nyong, A., et al. (2007): Africa: Climate Change 2007: Impacts, Adaptation and Vulnerability. Cambridge University Press, Cambridge UK, 433-467.

¹⁴ SEI (2009): Economics of Climate Change in Rwanda.

¹⁵ Tenge et al. (2013)

¹⁶ REMA (2009)

¹⁷ Ministry of Land, Environment, Forestry, Water and Mines (2006): NAPA Rwanda.

¹⁸ Tenge et al. (2013)

¹⁹ Liu, J., Fritz, S., et al. (2008): A spatially explicit assessment of current and future hotspots of hunger in Sub-Saharan Africa in the context of global change. *Global and Planetary Change* 64(3-4), pp 222-235.

²⁰ Government of Rwanda (2011): Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development. <http://www.greengrowthknowledge.org/resource/green-growth-and-climate-resilience-national-strategy-climate-change-and-low-carbon-0>

²¹ World Bank Data – GDP per capita, PPP. <http://data.worldbank.org/indicator/NY.GDP.PCAP.PP.CD>

²² World Population Review – Rwanda. <http://worldpopulationreview.com/countries/rwanda-population/>

²³ UNDESA (2017): World Population Prospects: The 2017 Revision, Key Findings and Advance Tables. Working Paper No. ESA/P/WP/248. https://esa.un.org/unpd/wpp/Publications/Files/WPP2017_KeyFindings.pdf

²⁴ World Bank Data – Population density. <http://data.worldbank.org/indicator/EN.POP.DNST>

²⁵ UNDP (2017). Human Development Report 2016: Human Development for Everyone. Table 1. <http://hdr.undp.org/en/content/human-development-index-hdi>

²⁶ Transparency International (2017) Corruption Perceptions Index. https://www.transparency.org/whatwedo/publication/corruption_perceptions_index_2016

²⁷ UNDP (2017). Human Development Report 2016. Table 5. <http://hdr.undp.org/en/content/human-development-index-hdi>

²⁸ CIA The World Factbook (2015). <https://www.cia.gov/library/publications/the-world-factbook/fields/2103.html>

Rwanda is highly vulnerable to climate change because of its dependence on agriculture, accounting for 33% of GDP in 2013 and employing 90% of the country's inhabitants (directly or indirectly)²⁹. Almost all agricultural activities are rain-fed, which makes the country very vulnerable to changes in rainfall patterns. Strong dependency of agriculture on natural resources further increases vulnerability to climate change: an evaluation of social vulnerability to climate change ranks Rwanda first among all African countries in terms of *natural resource dependency*, which it considers to be one of three indicators for social vulnerability to climate change³⁰. Vulnerability is further increased by Rwanda's high population density - with 460 persons per square kilometre among the highest in the world³¹ - which will increase further due to its annual population growth rate of 2.7%. Population density is especially high in the central/western north and south³², areas which are also characterized by high flood risks. Adaptive capacity of people in these areas is low because high population density decreases people's options of relocation in the case of an extreme event.

Climate change has different effects for the production of different crops. Cassava, once the main food and income-generating crop, was reported in 2009 to be 'a rare commodity' because of declining yields due to low soil moisture³³. Yields only picked up since the onset of the Crop Intensification Program, which claims to have led to tripled cassava production in Rwanda between 2009 and 2012³⁴. Expected future effects for the country's main staple crops - in order of importance - are:

- bananas (35% of productive area): productivity is unlikely to change as they grow well in higher temperatures;
- beans (22-30% of cultivated land): yields will seriously decrease because they require cooler temperatures (14-18 °C) that will no longer exist. Low soil moisture will further decrease yields³⁵;
- sorghum: will become suitable for some areas in the (north) west, which are currently too cold³⁶;
- potatoes: yields are expected to increase (25-90% between 2010 and 2050), which will make Rwanda able to meet all domestic demand and supply to an export market by 2050.

Coffee and tea are the most important cash crops of the country. Coffee especially is very sensitive to climatic factors: temperatures above 25 °C as well as atypical rainfall patterns have adverse effects on the plants³⁷. Higher temperatures due to climate change will force coffee producers to cultivate higher lands that are more prone to erosion, simultaneously leading to possible conflicts with small-scale farmers in such areas³⁸. Rwanda's 'persistent lack of economic diversification' beyond these crops³⁹ thus makes it more vulnerable to climate change.

Rwanda's energy security may be at risk due to climate change, as hydropower contributes 50% of electricity, making it vulnerable to variation in rainfall and evaporation. Droughts reduce generating capacity of hydroelectric dams, and floods increase soil erosion and siltation, which can damage dams. A good example of this is the drought in 2004 in Rwanda that reduced hydropower capacity so much that the government was forced to rent diesel power plants to meet domestic demand.⁴⁰ A 2009 study on the economics of climate change in Rwanda found that climate change is likely to cost 1% of GDP per year by 2030⁴¹.

Accessibility of markets in Rwanda is reasonable - most urban centres can be reached within 1-3 hours⁴² - but it is too poor to encourage private sector development beyond agriculture⁴³. Moreover, the fact that Rwanda is a landlocked country isolates it from global trade and information networks while simultaneously making it vulnerable to the effects of climate change (e.g. landslides, flooding) occurring in neighbouring countries.

About 40% of Rwanda's population lives below the poverty line, with women, disabled, widowed, and rural populations disproportionately affected⁴⁴. Moreover, Rwanda's traditional social networks are eroded by recent trends including migration, but also by the impact of the 1990's genocide⁴⁵. This implies poverty not only in an

²⁹ Index Mundi (2013): *Rwanda Economy Profile 2013*. http://www.indexmundi.com/rwanda/economy_profile.html

³⁰ Nabalamba, A., Mubila, M., Alexander, P. (2011): *Climate Change, Gender and Development in Africa*. African Development Bank.

³¹ World Bank Data - Population density. <http://data.worldbank.org/indicator/EN.POP.DNST>

³² Tenge et al. (2013)

³³ REMA (2009)

³⁴ Ministry of Agriculture (2012): *About Crop Intensification Program - CIP*. <http://www.minagri.gov.rw/index.php?id=31&L=0>

³⁵ REMA (2009)

³⁶ Tenge et al. (2013)

³⁷ Ngabitsinze, J.C., Mukashema, A., Ikirezi, M., Niyitanga, F. (2011): *Planning and costing adaptation of perennial crop systems to climate change: Coffee and banana in Rwanda*. <http://pubs.iied.org/pdfs/Go3174.pdf>

³⁸ Republic of Rwanda (2011): *Green Growth and Climate Resilience: National Strategy for Climate Change and Low Carbon Development*. <http://www.uncsd2012.org/content/documents/364Rwanda-Green-Growth-Strategy-FINAL.pdf>

³⁹ Tenge et al. (2013)

⁴⁰ Republic of Rwanda (2011): *Green Growth and Climate Resilience*. <http://www.uncsd2012.org/content/documents/364Rwanda-Green-Growth-Strategy-FINAL.pdf>

⁴¹ CDKN (2013a): *Climate and Development Outlook Rwanda: Pioneering steps towards a climate resilient green economy*. http://cdkn.org/wp-content/uploads/2013/09/CDKN-Outlook-8_Rwanda_WEB.pdf

⁴² Tenge et al. (2013)

⁴³ The World Bank (2014): *Rwanda Overview*. <http://www.worldbank.org/en/country/rwanda/overview>

⁴⁴ <http://www.rw.undp.org/content/rwanda/en/home/countryinfo.html>

⁴⁵ REMA (2011b)

economic sense, but also in a social sense – which limits people's opportunities for adapting to climate change. It is also important to note that Rwanda ranks 6th of 53 African countries in terms of the female share of the agricultural workforce (57%)⁴⁶. Women's often unfavourable situation in terms of land tenure security and access to options for climate change adaptation suggests that they may be disproportionately affected by climate change⁴⁷. Moreover, existing power imbalances between men and women cause women to bear most negative effects of (climate change-induced) disasters. The fact that women are primarily responsible for households' water availability and food security moreover suggests their burdens will increase disproportionately due to climate change⁴⁸.

National government strategies and policies

Rwanda has ratified the UN Convention on Biological Diversity (CBD), the Convention to Combat Desertification (CCD), the Framework Convention on Climate Change (UNFCCC) and the Kyoto Protocol. Rwanda signed the Paris Agreement on climate change in April 2016 and ratified the agreement in October 2016 with it entering into force in November 2016 (see Nationally Determined Contributions below). Rwanda prepared a National Strategy for Climate Change and Low Carbon Development (2011) and was one of the first countries in Africa to submit a National Adaptation Program of Action (NAPA) (2006)⁴⁹. The NAPA identified six priority adaptation actions:

- IWRM (integrated water resources management);
- early warning systems/ rapid intervention;
- promotion of income-generating activities;
- promotion of intensive agriculture and animal husbandry;
- introduction of varieties resistant to environmental conditions;
- development of energy sources alternative to firewood.

The first and second actions have been taken up by a programme under the Least Developed Country Fund (LDCF), approved in 2010.

Rwanda's ambitious Green Growth and Climate Resilience Strategy (GGRS) was launched at a UNFCCC side event at CoP17 in Durban in 2011. The purpose of the Strategy is threefold:

1. to guide national policy and planning in an integrated way;
2. to mainstream climate change into all sectors of the economy;
3. to position Rwanda to access international funding to achieve climate resilience and low carbon development⁵⁰.

The associated Programmes of Action planned under these objectives are 14 in total, including 'sustainable intensification of small-scale farming', 'agricultural diversity of markets', 'sustainable land use management', and 'integrated water resource management'. For financing the implementation of this strategy, the government is applying to various funds, including the new Green Climate Fund⁵¹.

Rwanda has made a request to the National Support Plan Global Support Programme (NAP-GSP) for support for the development of its National Adaptation Plan. Rwanda has submitted to the UNFCCC seven NAMAs for which it is seeking support for preparation. The proposed mitigation actions include sustainable fertility production and use, developing a sustainable charcoal value chain, electrification with PV mini-grids, energy efficiency improvement in the tea and coffee sector, transport in Rwanda, and waste-to-energy and improved waste management practices in Kigali.

In May 2013, the second Economic Development and Poverty Reduction Strategy (2013-2018) (EDPRS 2) was approved by the cabinet. The strategy forms the centrepiece of Rwanda's medium-term plan for development and the framework within which the Government of Rwanda will focus efforts on transforming the economy and realising Vision 2020. Pursuing a 'green economy approach' to development is one of five economic priorities in the EDPRS 2. Climate change and the environment have been integrated into EDPRS 2 as a 'cross-cutting issue' with the focus on mainstreaming environmental sustainability into productive and social sectors and reducing vulnerability to climate change. The EDPRS 2 identifies both the GGCRS and FONERWA (see under 'Climate finance') as strategic tools for guiding specific interventions within national sector strategic plans and their implementation⁵².

⁴⁶ Nabalamba et al. (2011)

⁴⁷ NCEA-DSU (2014): Integrating Gender Equality in Climate-Smart Development: Quick Reference Guide. <http://dsu.eia.nl/publications/advisory-reports/7111>

⁴⁸ NEPAD (2012): *African Gender, Climate Change and Agriculture Support Program (GCCASP) – Rwanda Consultation Report*. <http://www.nepad.org/system/files/Rwanda%20National%20Consultation%20Report.pdf>

⁴⁹ Republic of Rwanda (2011)

⁵⁰ Partnership for SDGs Republic of Rwanda, <https://sustainabledevelopment.un.org/partnership/?p=2253>

⁵¹ Republic of Rwanda (2011): *Green Growth and Climate Resilience – National Strategy for Climate Change and Low Carbon Development*. <http://www.unccd2012.org/content/documents/364Rwanda-Green-Growth-Strategy-FINAL.pdf>

⁵² CDKN (2013a): *Climate and Development Outlook Rwanda: Pioneering steps towards a climate resilient green economy*. http://cdkn.org/wp-content/uploads/2013/09/CDKN-Outlook-8_Rwanda_WEB.pdf

There are still institutional and financial challenges for the Government of Rwanda to develop its activities on climate change, but over the past decade it has demonstrated a keen awareness of the economic risks and opportunities of climate change for sustainable socio-economic development. The development of a strategy (GGCRS) and a fund (FONERWA) for climate change action put it ahead of many neighbouring countries.

Nationally Determined Contributions (NDC)

Rwanda submitted its INDC to the UNFCCC in 2015 and its First NDC (the INDC) in October 2016. In its NDC Rwanda introduces itself as a country with high rates of economic growth, decreasing (although still high) population growth, and increasing food crop production. Adaptation is the priority due to the high vulnerability of key economic activities such as agriculture, energy and forestry. Although Rwanda has one of the lowest GHG emissions in the world, Rwanda has established mitigation targets through its Green Growth and Climate Resilient Strategy (GGCRS). Rwanda's NDC is built upon its National Strategy for Climate Change and Low Carbon Development Strategy. The priority actions are those identified in its GGCRS with many of the actions having both adaptation and mitigation benefits.

Adaptation actions include:

- sustainable intensification of agriculture (e.g. soil conservation and land husbandry; sustainable pest management, irrigation and water management);
- agricultural diversity in local and export markets (e.g. add value to agricultural products);
- sustainable forestry, agroforestry and biomass energy (e.g. promote afforestation/reforestation; improved forest management);
- ecotourism, conservation and payment for ecosystem services promotion in protected areas (strategic conference management);
- integrated water resource management and planning (e.g. establish a national integrated water resource management framework that incorporates district and community-based catchment management);
- integrated approach to sustainable land use planning and management (e.g. improve spatial data by harnessing ICT and GIS);
- disaster management (e.g. conduct risk assessments and vulnerability mapping);
- climate data and projections to provide climate information necessary for future monitoring, climate trend detection, management of climate variability, early warning and disaster management.

Mitigation actions include:

- low carbon energy mix (e.g. establishment of new grid connected renewable electricity generation capacity in the form of large-scale hydro power plants and solar PV power);
- sustainable small-scale energy installation (e.g. installation of solar PV mini-grids in rural communities);
- energy efficiency and demand side management (e.g. increase energy efficiency through demand-side measures and grid-loss reduction);
- efficient resilient transport system (e.g. improvement of transport infrastructure);
- green industry and private sector development (e.g. scale up resource efficiency to reduce energy demand in agro-processing industries);
- implementation of low carbon urban systems (e.g. utilization of urban waste as a high resource stream);
- sustainable forestry, agroforestry and biomass energy.

The Ministry of Natural Resources (MINRENA) is the responsible for formulating and monitoring national policies related to climate change and environment, while the Rwanda "Environment Management Authority (REMA) is responsible for implementing national policies and strategies related to climate change and environment.

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The estimated costs of implementing the GGCRS was estimated as USD 24.15 billion in the sectors of water resource management, agriculture and energy up to 2030. It is noted that full implementation of the NDC will require predictable sustainable and reliable support in the form of finance, capacity building and technology transfer⁵³.

Climate finance

One of the recommendations of the GGCRS was the creation of a national fund through which international and domestic climate finance can be managed. This fund, FONERWA (Fund for Environment and Climate Change) was established with technical support provide by the Climate Development and Knowledge Network (CDKN). In 2013, FONERWA obtained financing from the British International Climate Fund (ICF) of £22.5 million, making it the largest demand-based climate fund in Africa. FONERWA can only be accessed for projects in Rwanda through four thematic windows:

- conservation and sustainable natural resource management;
- R&D, technology transfer and implementation;
- environment and climate change mainstreaming;
- environmental impact assessment monitoring and enforcement⁵⁴.

⁵³ Ibidem, pp. 2.

⁵⁴ CDKN (2013a): *Climate and Development Outlook Rwanda: Pioneering steps towards a climate resilient green economy*. http://cdkn.org/wp-content/uploads/2013/09/CDKN-Outlook-8_Rwanda_WEB.pdf

FONERWA recently celebrated its fifth anniversary. It has provided funding to over 30 projects. FONERWA provides the credibility that Rwanda can coordinate, manage and disburse climate finance. Rwanda is one of a few African countries with a National Implementing Entity (NIE) for the UNFCCC's Adaptation Fund (Ministry of Natural Resources (MINIRENA))^{55, 56}. It also has a designated authority to receive funding from the Green Climate Fund, the Rwanda Environmental Management Authority (REMA)⁵⁷.

Rwanda is a member of the Global Green Growth Institute (GGGI) and is receiving assistance on the implementation of its green growth strategy, primarily on green growth of secondary cities. Rwanda has joined with nineteen other climate vulnerable countries (V20) to call for more action to reduce global emissions and better financing for climate change adaptation and mitigation efforts in developing nations⁵⁸.

Climate change projects

For a list of international and multilateral climate projects in Rwanda, see the [Annex](#).

Climate contribution of the Netherlands

The Netherlands supports climate-relevant projects in Rwanda through a variety of channels and in cooperation with range of actors in the fields of integrated water management, food security and renewable energy. Projects focus on:

- Integrated Water Resources Management to enhance the capacity of government and local communities to properly plan and manage Water (and Land) resources.
- Forestation/re-forestation to combat erosion and provide agro-forestry economic opportunities.
- Enhanced rural infrastructure (rural roads, markets, etc.) that will stimulate local economic development and strengthen the resilience of local communities.
- Agricultural Value Chain development based on sustainable and climate-smart agricultural practices.
- Improved Natural Resources Management (land, forest, water) to increase productivity for sustainable climate-smart food systems, following a Landscape approach.
- Enhanced access to renewable energy, through facilitating the development of micro-hydropower plants and through pilot projects for solar lighting and village grids (Energising Development)

⁵⁵ Schaeffer, M; Baarsch, F.; Munang, R.; Baxter, C. (eds) (2015): *Africa's Adaptation Gap 2 – Technical Report*. AMCEN, UNEP, Climate Analytics and African Climate Finance Hub. http://apps.unep.org/publications/pmtdocuments/-/Africa%E2%80%99s_Adaptation_Gap_2_.pdf

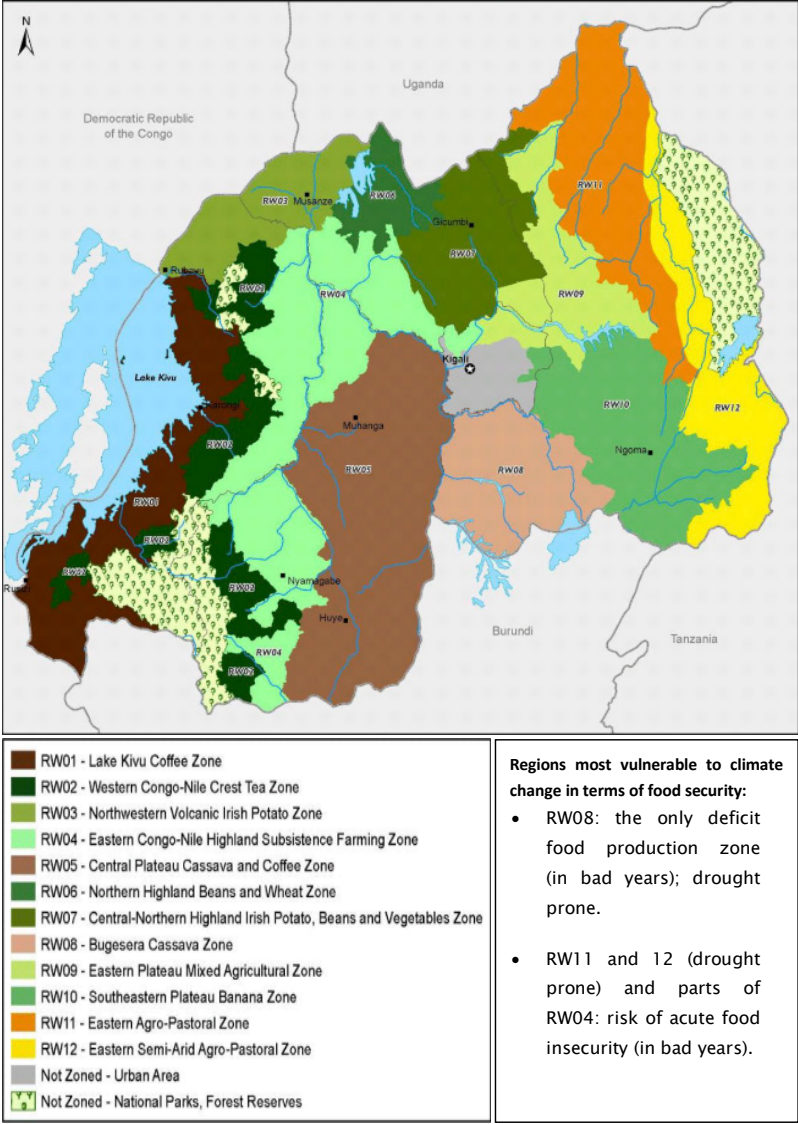
⁵⁶ Otiende, B. (2014): *EAC Climate Change Financing Options: Finance Readiness Activities and EAC Climate Change Fund*. East African Community. http://www.acadfacility.org/downloads/climate_finance_and_investment_forum_29-30_sept_2014/presentations/session-2/EAC%20Climate%20Change%20Financing-%20CIF-29-30%20Sept%202014_EAC.pdf

⁵⁷ Green Climate Fund (2015): *National Designated Authority (NDA) and focal point designations*. http://www.gcfund.org/fileadmin/oo_customer/documents/Readiness/2015-4-12_NDA_and_Focal_Point_nominations_for_the_Green_Climate_Fund.pdf

⁵⁸ FONERWA, 2015, Rwanda joins the V20 Group of Nations, <http://www.fonerwa.org/news/2015/11/3/rwanda-joins-the-vulnerable-twenty-v20-group-of-nations>

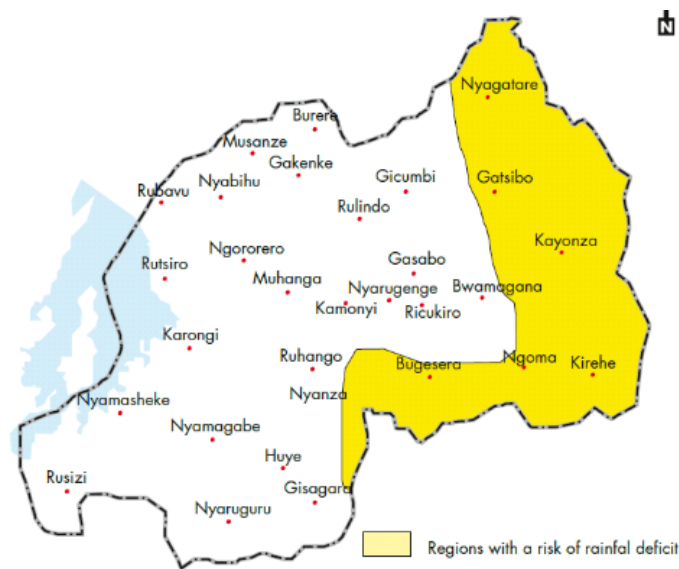
Maps

Map 1 Livelihood zones in Rwanda

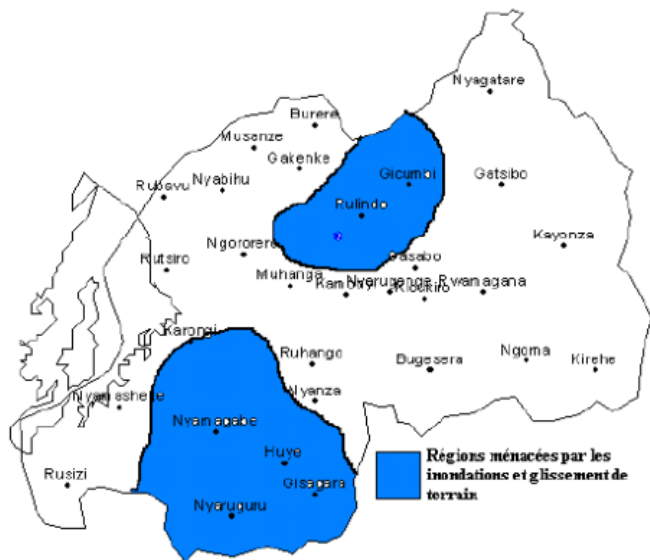


Source: USAID and FEWS NET (2011)

Map 2 Regional risks of rainfall deficits/droughts

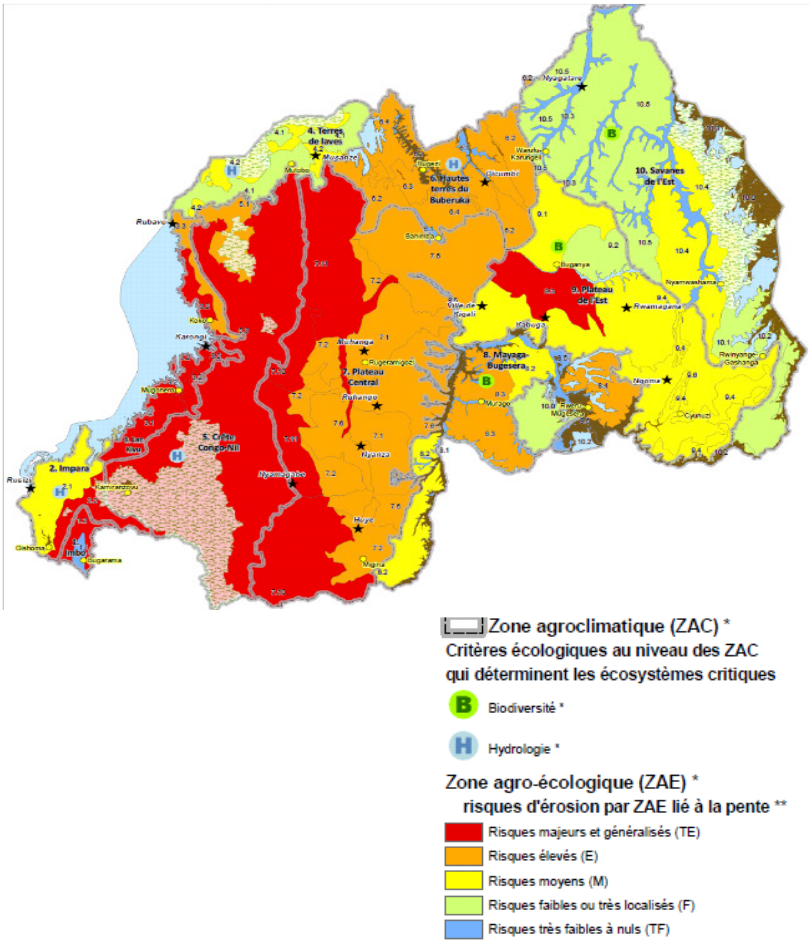


Map 3 Regional risks of floods and landslides



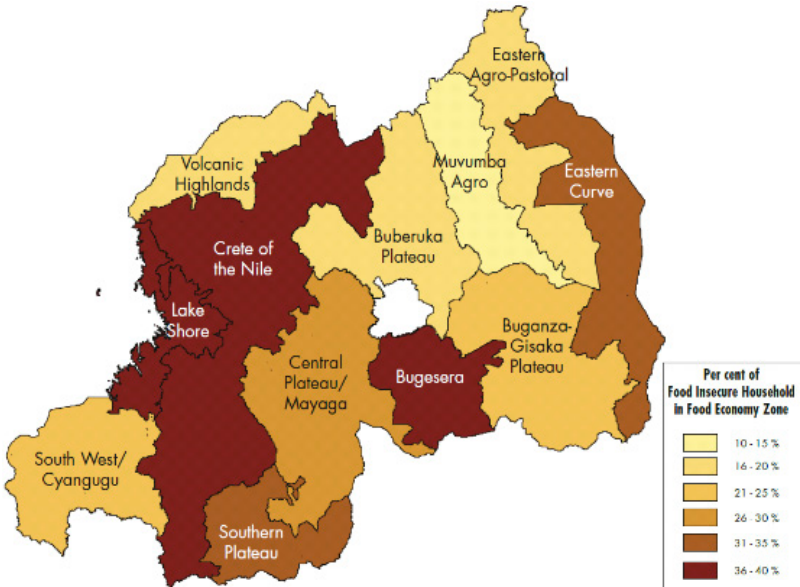
Source: Ministry of Land, Environment, Forestry, Water and Mines (2006)

Map 4 Erosion risks



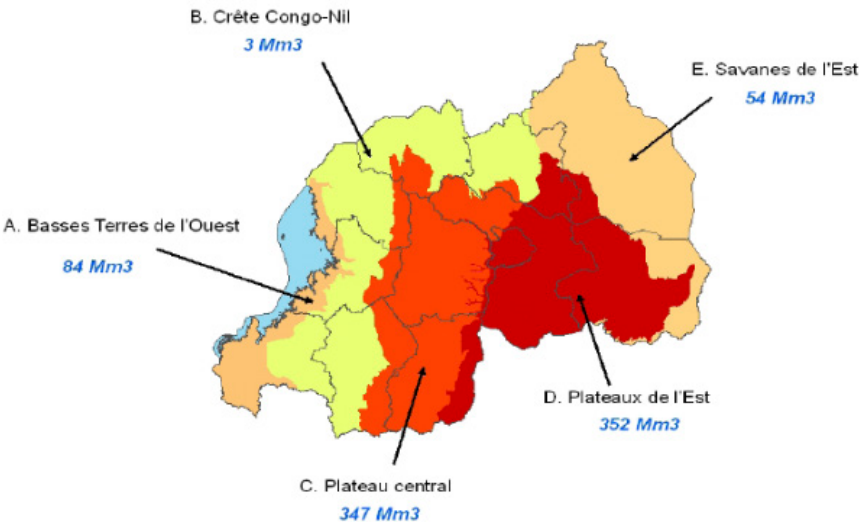
Source: REMA (2009)

Map 5 Food insecurity zones



Source: REMA (2009)

Map 6 Total water requirements in 2020 (units unspecified)



Source: REMA (2009)

Annex

International and multilateral climate projects (since 2012)

Source Climate Funds Update (2017)⁵⁹ and World Bank (2017)⁶⁰

Name of Project	Fund	Amount of Funding Approved (USD millions)	Disbursed (USD millions)	Dates
Post-harvest Agribusiness Support Project	Adaptation for Smallholder Agriculture Programme (ASAP)	7	2.3	2013
Increasing the adaptive capacity of natural systems and rural communities, living in exposed areas of North Western Rwanda, to climate change impacts	Adaptation Fund (AF)	10	9	2013-2019
Technical Assistance Grant for ESP and Gender	Adaptation Fund (AF)	0.03	0.03	2016
Sector Reform Contract (SRC) to promote climateproof investments by farmers through improved land administration and land use monitoring capacities at central and local government level	Global Climate Change Alliance (GCCA)	4.5		2014-2017
Increasing the Capacity of Vulnerable Rwandan Communities to Adapt to Adverse Effects of Climate Change: Livelihood Diversification and Investment in Rural Infrastructures	Least Developed Countries Fund (LDCF)	9		2014
Building Resilience of Communities Living in Degraded Forests, Savannahs and Wetlands of Rwanda Through an Ecosystem Management Approach	Least Developed Countries Fund (LDCF)	5.5		2013
Renewable Energy Fund Project	SREP/CIF	49.24		2017
Readiness program support	Green Climate Fund (GCF)	0.3		2015
Landscape approach to forest restoration and conservation (LAFREC)	World Bank	5.5		2014
Renewable Energy Fund	World Bank	49		2017
Rwanda Improved Cookstove Project	World Bank	7.65		2017
Rwanda third rural sector support project – additional financing	World Bank	16		2014
Land Husbandry, water harvesting and hillside irrigation – and additional financing	World Bank	34 (and 35 additional financing)		2013
Rwanda electricity access – additional financing	World Bank	60		2013
Third rural sector support project	World Bank	80		2012

⁵⁹ <http://www.climatefundsupdate.org/data>

⁶⁰ http://projects.worldbank.org/search?lang=en&searchTerm=&countrycode_exact=RW

